

Title of Invention: High Contrast Surface
Marking Using Irradiation of Electro-
Statically Applied Marking Materials
Inventor's Name: Harrison, Paul
Serial No: 09/880,391

#4

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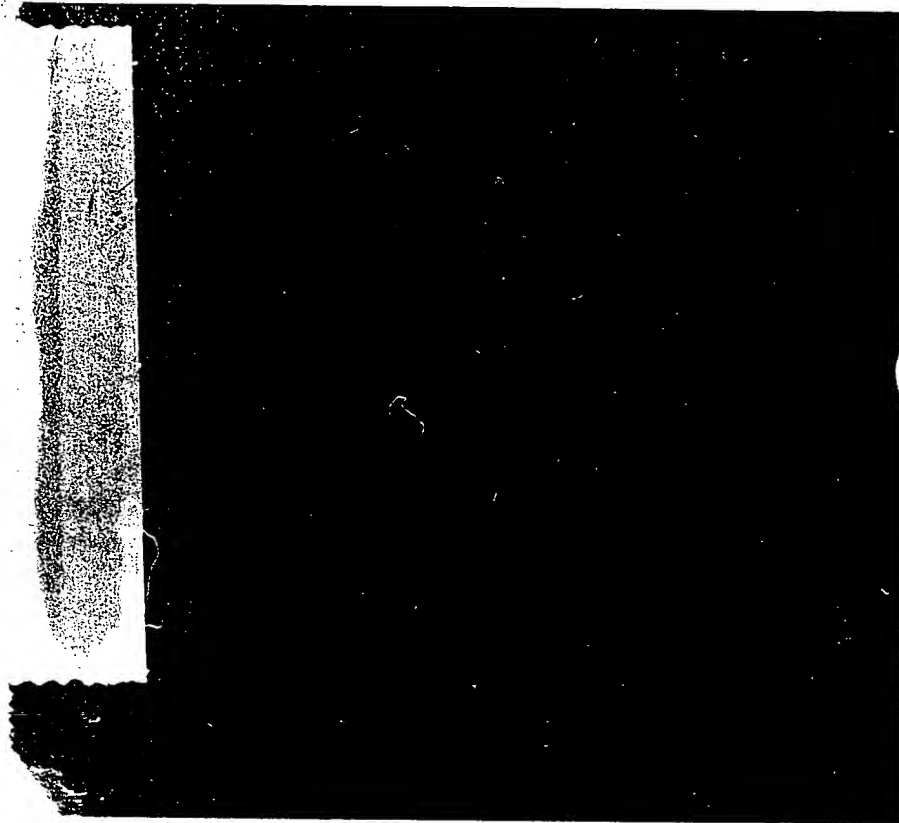


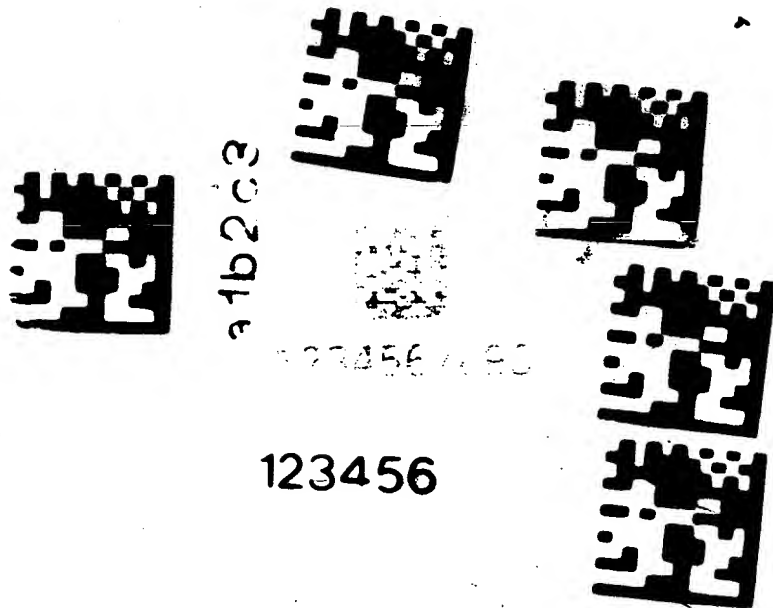
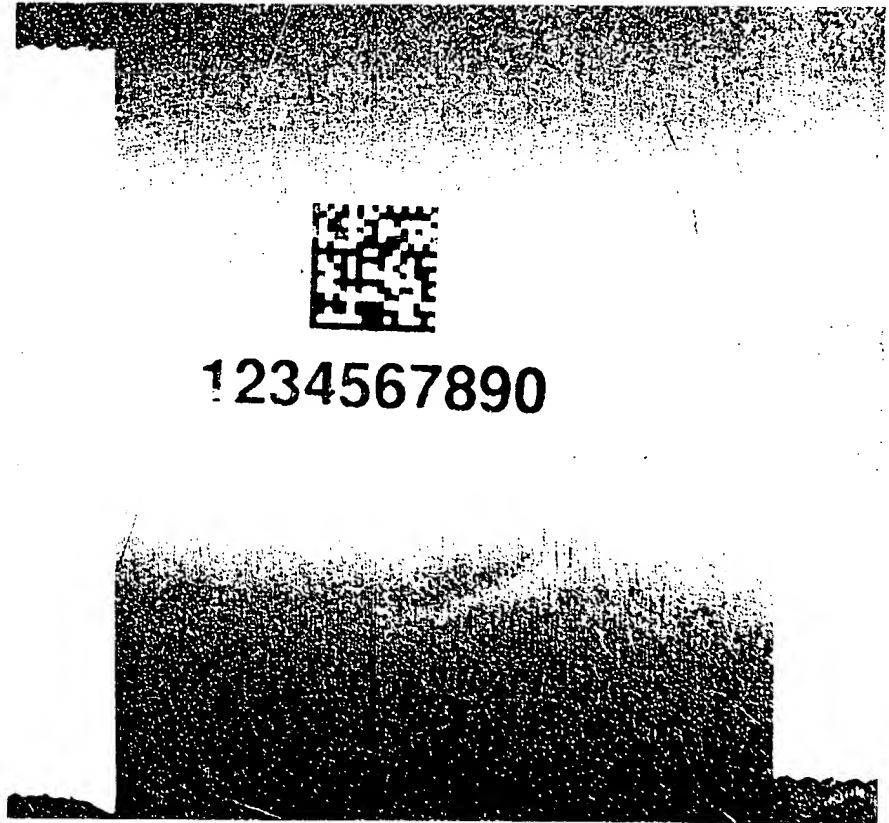
FIG. 1



FIG. 2

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100260"1500000

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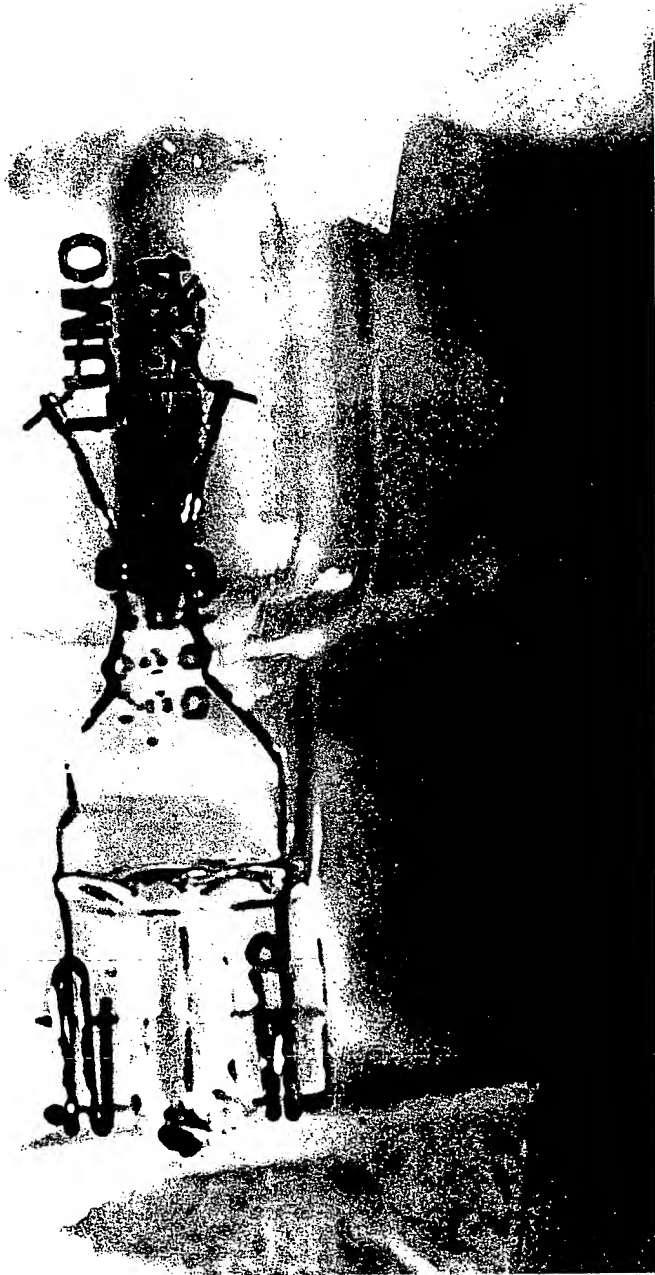


FIG. 5

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<u>Substrate Materials</u>	<u>Marking Materials</u>	<u>Beam Speed</u>	<u>Power (watts)</u>	<u>Freq (Khz/Cw)</u>
Aluminum	Mixed Metal Oxide	200mm/sec	5 watts	CW
Aluminum	Glass Frit	250mm/sec	5 watts	CW
Brass	Mixed Metal Oxide	200mm/sec	5 watts	CW
Ceramic	Glass Frit	200mm/sec	5 watts	CW
China	Glass Frit	200mm/sec	5 watts	CW
Copper	Mixed Metal Oxide	100mm/sec	5 watts	20 KHz
Auto Safety Glass	Glass Frit	200mm/sec	5 watts	CW
CRT Display Glass	Glass Frit	200mm/sec	5 watts	CW
Flat Panel Display Glass	Glass Frit	200mm/sec	5 watts	CW
Microscope Slide Glass	Glass Frit	200mm/sec	5 watts	CW
Nickel	Mixed Metal Oxide	200mm/sec	5 watts	CW
Nylon™	Mixed Metal Oxides	250mm/sec	5 watts	CW
Porcelain	Glass Frit	200mm/sec	5 watts	CW
PVC	Mixed Organic Pigments	200mm/sec	5 watts	CW
Stainless Steel	Mixed Metal Oxide	200mm/sec	5 watts	CW
Stainless Steel	Glass Frit	300mm/sec	5 watts	CW
Teflon™	Mixed Metal Oxides	200mm/sec	5 watts	CW
Tin	Mixed Metal Oxide	200mm/sec	5 watts	CW
Titanium	Mixed Metal Oxide	200mm/sec	5 watts	CW

FIG. 8

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<u>Substrate Materials</u>	<u>Marking Materials</u>	<u>Beam Speed</u>	<u>Power (watts)</u>	<u>Freq (Khz/Cw)</u>
Aluminum	Mixed Metal Oxide	200mm/sec	5 watts	CW
Aluminum	Glass Frit	250mm/sec	5 watts	CW
Brass	Mixed Metal Oxide	200mm/sec	5 watts	CW
Ceramic	Glass Frit	200mm/sec	5 watts	CW
China	Glass Frit	200mm/sec	5 watts	CW
Copper	Mixed Metal Oxide	100mm/sec	5 watts	20 KHz
Auto Safety Glass	Glass Frit	200mm/sec	5 watts	CW
CRT Display Glass	Glass Frit	200mm/sec	5 watts	CW
Flat Panel Display Glass	Glass Frit	200mm/sec	5 watts	CW
Microscope Slide Glass	Glass Frit	200mm/sec	5 watts	CW
Nickel	Mixed Metal Oxide	200mm/sec	5 watts	CW
Nylon™	Mixed Metal Oxides	250mm/sec	5 watts	CW
Porcelain	Glass Frit	200mm/sec	5 watts	CW
PVC	Mixed Organic Pigments	200mm/sec	5 watts	CW
Stainless Steel	Mixed Metal Oxide	200mm/sec	5 watts	CW
Stainless Steel	Glass Frit	300mm/sec	5 watts	CW
Teflon™	Mixed Metal Oxides	200mm/sec	5 watts	CW
Tin	Mixed Metal Oxide	200mm/sec	5 watts	CW
Titanium	Mixed Metal Oxide	200mm/sec	5 watts	CW

FIG. 8

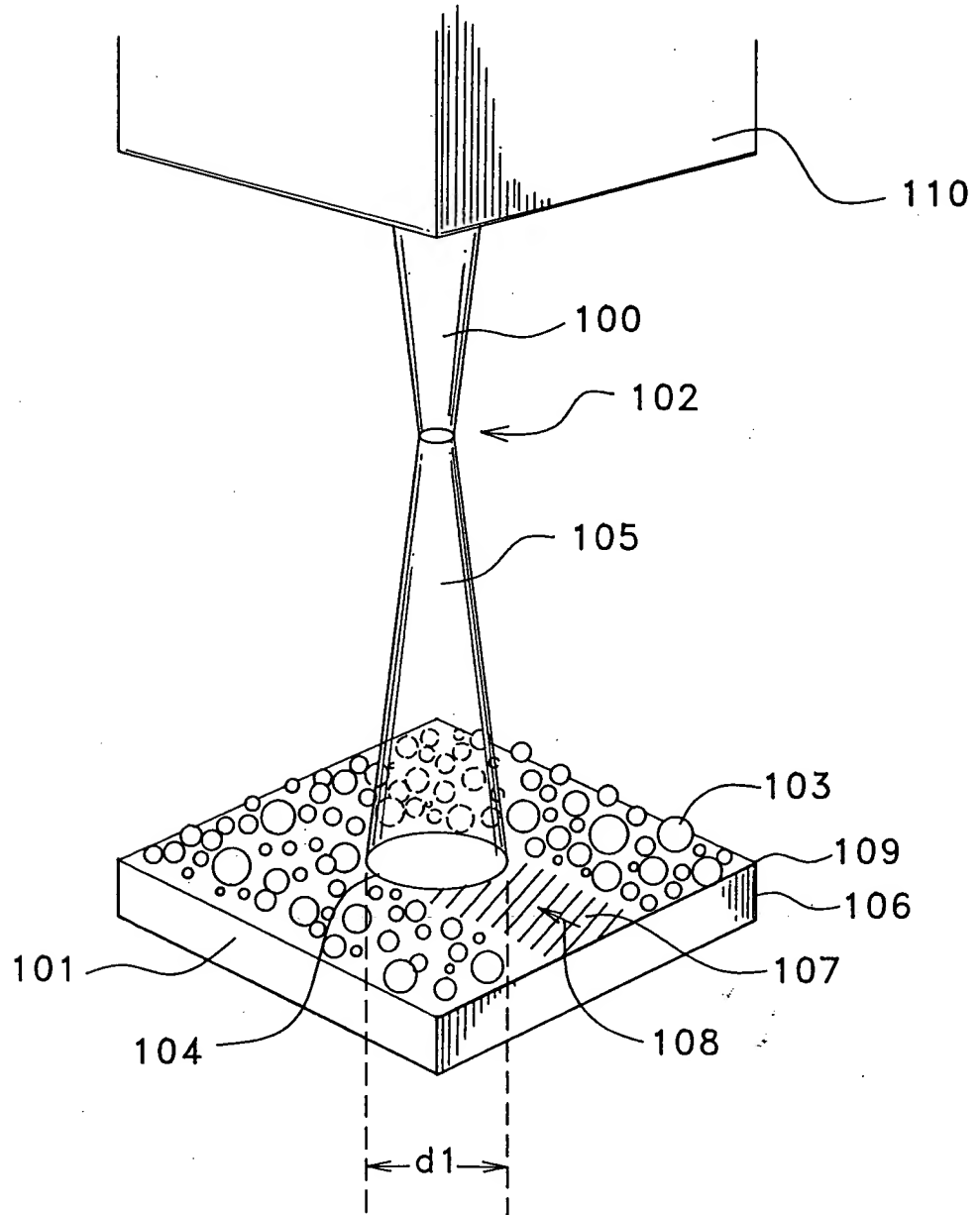


FIG. 9

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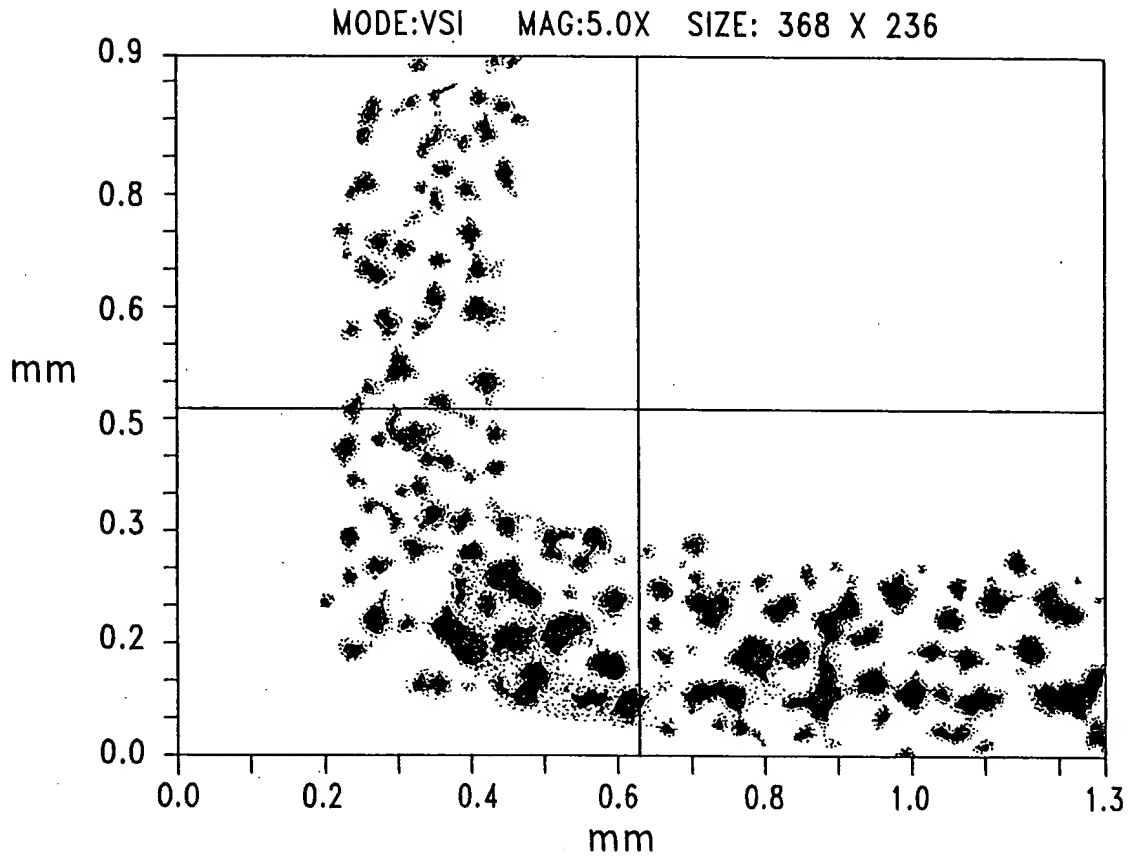


FIG. 10 a

GLASS SLIDE - PORCELAIN/GLASS FRIT

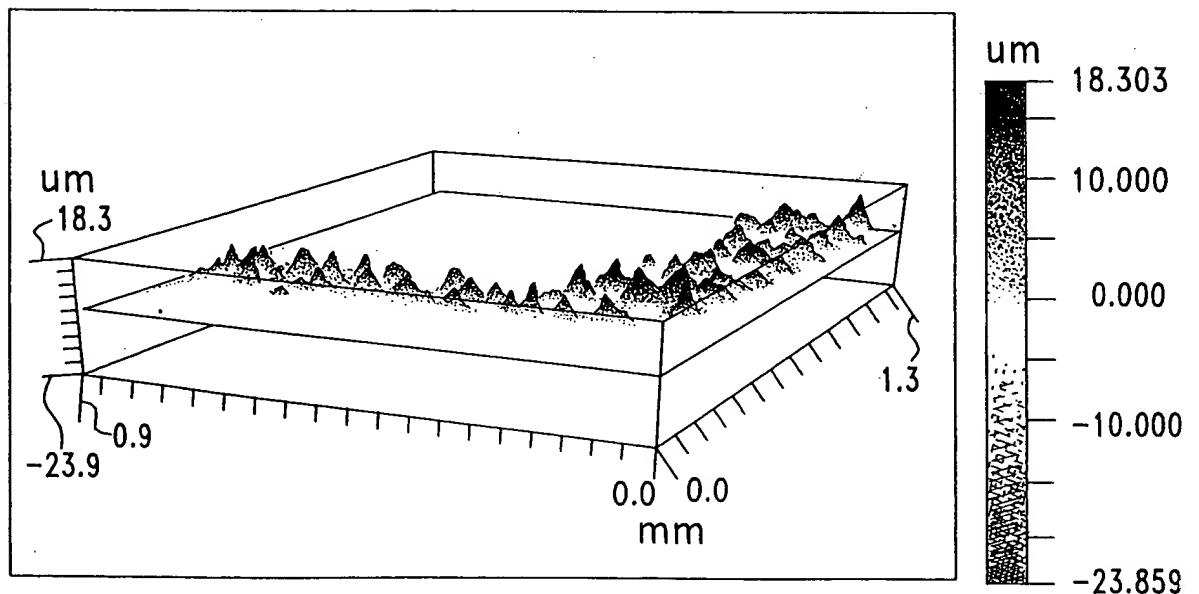
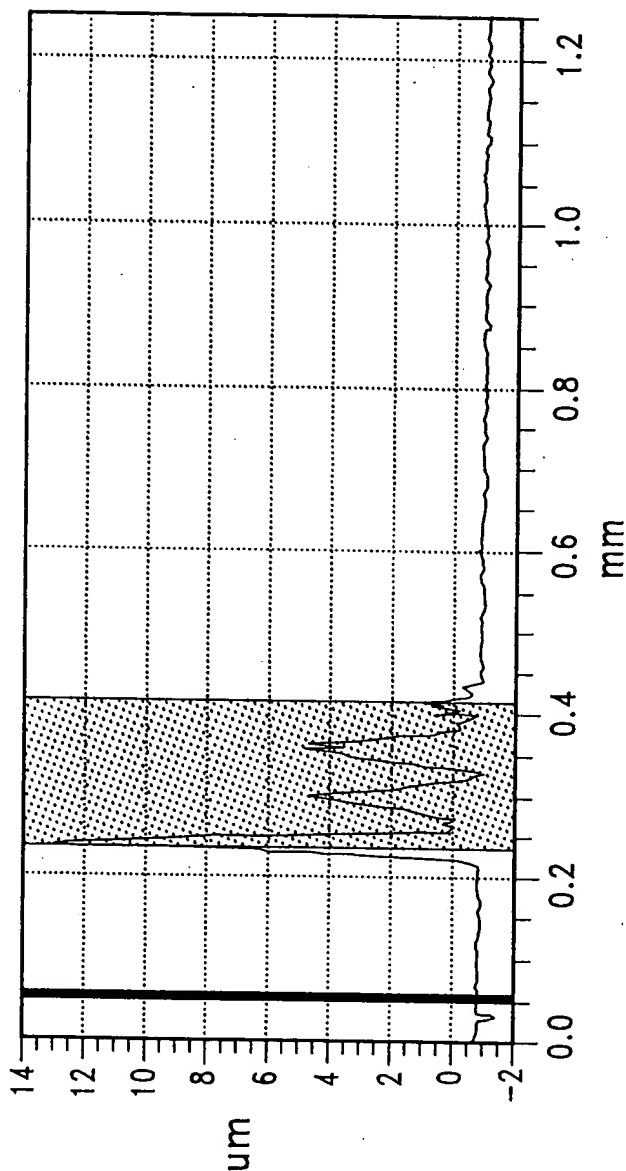


FIG. 10 b

T00260" T6E00860

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X-PROFILE/2 PT/RADIAL



Rq: 2.92 um
Ra: 1.97 um
Rt: 14.09 um
Rp: 13.17 um
Rv: -0.92um

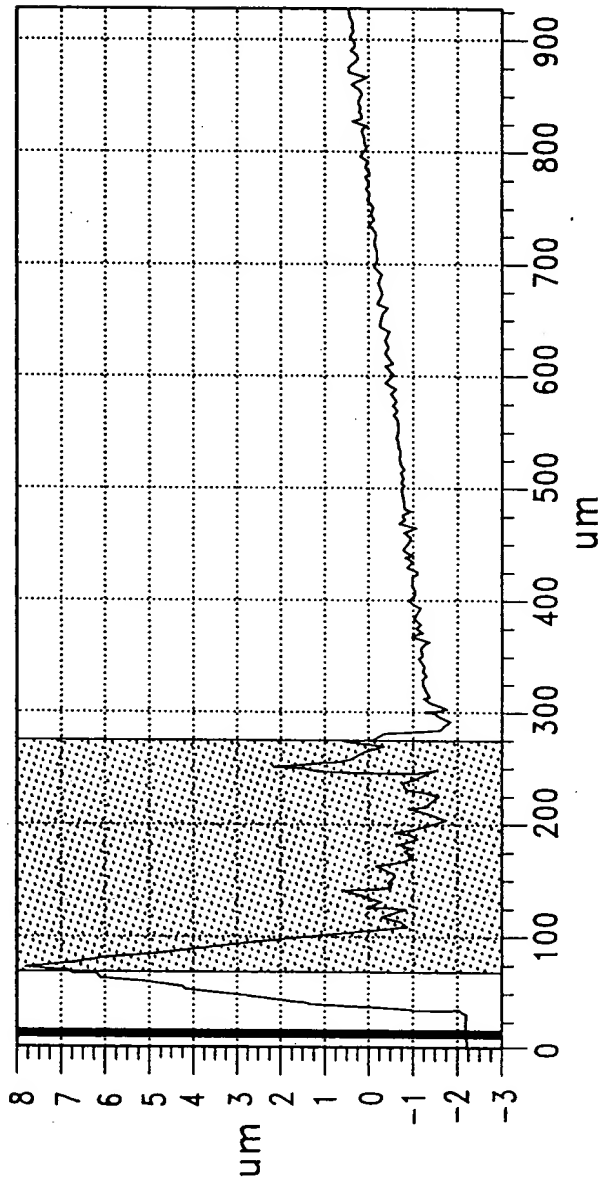
L: 0.05 mm -0.83 um
R: 0.33 mm 2.23 um
D: 0.27 mm 3.05 um
Angle: 0.64°
Curve: -14.65 mm
Terms: None
AvgHt: 0.61 um
Area 0.17 um2

FIG. 10c

100260" 16C08860

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Y-PROFILE/CIRCULAR



Rq: 2.85 um
Ra: 2.44 um
Rt: 9.96 um
Rp: 7.79 um
Rv: -2.16 um

L: 13.93 um Angle: 0.98°
R: 170.62 um Curve: -492.76 um
D: 156.69 um Terms: None
AvgHt: 1.20 um
Ared: 187.84 um²

FIG. 10 d